

The Force Index

By John A. Sarkett, Developer, [Option Wizard](#)

Prices undulate like ocean waves.

Ebb and flow, flow and ebb.

Every once in a while, however, a huge shift in price and volume hits the market with the impact of a tidal wave. This sets the stage for follow-through price movement. There is an indicator that measures and depicts this Major Event more vividly than any other: the Force Index. Developed by Dr. Alexander Elder, it is presented in his latest book *Trading for a Living*.

The Force Index focuses on three key pieces of market information -- price change, extent of price change and trading volume. The force of every move is defined by its direction, distance, and volume. If prices close higher, the force is positive, if lower, then negative. The greater the change in prices, the greater the force. The greater the volume, the greater the force. That is the simple but powerful concept behind Force Index.

Like other oscillators, Force Index works best if it is smoothed with a moving average (MA). Force Index smoothed with a short MA, e.g. two days, helps pinpoint entry and exit points. Force Index smoothed with a longer MA, e.g. 13 days, shows major change in the force of bulls and bears.

Building the Force Index

You can build your own Force Index database for any security or index in a spreadsheet. Here is the formula:

$$\text{Force Index} = \text{Volume Today} * (\text{Close Today} - \text{Close Yesterday})$$

Let's look at a spreadsheet to get the 'feel' for the numbers; here are the numbers for the Nikkei Dow:

Nikkei Dow

Date Close Volume Force Index FI: 2-ema FI: 13-ema

10/29	25329	3834		
10/30	25242	4495	-391065	
10/31	25194	1372	-65856	-130807
11/01	24295	2547	-2289753	-1570105
11/02	24195	2891	-289100	-7161902
11/05	24385	1448	275120	-55287
11/06	23966	2796	-1171524	-799445
11/07	23500	3675	-1712550	-1408182
11/08	22970	3167	-1678510	-1588400
11/09	22932	2880	-109440	-602426
11/13	23974	2484	2588328	1524743
11/14	23937	1827	-67599	463181
11/15	23487	2212	-995400	-509206
11/16	23172	2741	-863415	-745345
11/19	23519	1931	670057	198256
11/20	23205	1405	-441170	-228027
11/21	22816	2259	-878751	-661843
11/22	23400	2163	1263192	621514

(If you like to plot the numbers yourself, or import them from a technical analysis program for your own analysis, here's a programmer's trick to make the Force Index exponential moving average (EMA) numbers smaller and more chartable: divide Force Index by the price of the underlying security.)

If you plot Force Index as a histogram, you will see it is quite jagged, so Dr. Elder recommends smoothing it with a 2-day-average and a 13-day-average. Short term traders can buy when the 2-day exponential moving average (ema) is negative and sell when it is positive, as long as you trade with the 13-day ema of prices, that is to say, trade with the trend, buying uptrends and selling downtrends.

The 13-day EMA of Force Index tracks longer-term change in the force of bulls and bears. When it crosses above its centerline, it shows that the bulls have the upper hand. Conversely, when it turns negative and heads down through the centerline, it shows that the bears are in control.

Divergences between a 13-day EMA of Force Index and prices point to important turning points. It shows that bulls or bears are losing their firing power (volume) and that a counterattack may soon follow.

Seven Trading Rules

A 2-day EMA of Force Index is a highly sensitive indicator of the short-term force of bulls and bears. It is so sensitive that it is best used to fine-tune signals of other indicators. When a trend-following indicator identifies an uptrend, the declines of the 2-day EMA of Force Index spot the best buying points. When a trend-following tool identifies a downtrend, a 2-day EMA of Force Index pinpoints the best shorting areas.

Rule NO. 1.

Buy when a 2-day EMA of Force Index turns negative during uptrends.

No matter how fast and furious an uptrend, there are always pullbacks. If you delay buying until the 2-day EMA of Force Index turns negative, you will buy closer to a short-term bottom.

Buy-Stop, Sell-Stop Trading Tactic. When a 2-day EMA of Force Index turns negative during an uptrend, place a buy order above the high price of that day. If the uptrend resumes and prices rally, you will be stopped in on the long side. If prices continue to decline, your order will not be executed. Then lower your buy order to within one tick of the high of the latest bar. Once your buy stop is triggered, placed a protective stop below the low of the trade day or the previous day, whichever is lower. This tight stop is seldom touched in a strong uptrend, but gets you out early if the trend is weak.

Now for our second rule . . .

Rule NO. 2

Sell short when a 2-day EMA of Force Index turns positive in downtrends.

Your trend-following indicators identify a downtrend, but rather than short the lows, wait until your 2-day EMA of Force Index turns positive. It indicates a quick splash of bullishness -- a shorting opportunity. Place your order to sell short below the low of the latest price bar.

Let's say, however, the 2-day EMA of Force Index continues to rally after you place your sell order, raise it daily to within a tick of the latest bar's low. Once price slides and you go short, place a protective stop above the high of the latest price bar or the previous bar, whichever is higher. Move your stop down to a break-even level as early as possible, (remembering of course, that while various trading systems can be successful at various times, money management is the one system we all must have all the time to be successful.)

The 2-day EMA of Force Index helps you determine when to pyramid your positions. You can add to longs in uptrends each time Force Index turns negative and add to shorts in downtrends whenever Force Index turns positive.

Force Index even provides a glimpse into the future. When a 2-day EMA of Force Index falls to its lowest low in a month, it shows that bears are strong and prices are likely to fall even lower. When a 2-day EMA of Force Index rallies to its highest level in a month, it shows that bulls are strong and prices are likely to rise even higher.

Perhaps most helpfully for some, a 2-day EMA of Force Index helps you decide when to close a position. A short term trader who goes short when this indicator is positive should cover when it turns negative. A longer-term trader should exit only if a trend changes (as demonstrated by a change in the slope of a 13-day EMA of price), or if there is a divergence between 2-day EMA of Force Index and the trend.

Rule NO. 3

Buy when prices fall to a new low while Force Index makes a more shallow bottom.

Bullish divergences between 2-day EMA of Force Index and price give strong buy signals. A bullish divergence

occurs when prices fall to a new low while Force Index makes a more shallow bottom.

Rule NO. 4

Sell when prices rally to a new high while Force Index traces a lower second top.

Bearish divergences between 2-day EMA of Force Index and price give strong sell signals. A bearish divergence occurs when prices rally to a new high while Force Index makes a lower second top.

Looking at the intermediate term

A 13-day EMA of Force Index identifies longer-term changes in the strength of bulls and bears. Its position relative to its centerline shows which group is in control. When it diverts from price movement, major turning points are identified.

Rule NO. 5

When a 13-day EMA of Force Index is above the centerline, bulls control the market, and when it is below the centerline, bears control it. When this indicator flutters near its centerline, it identifies a trendless market -- a warning not to use trend-following trading methods.

When a rally commences, prices often leap up on heavy volume. When a 13-day EMA of Force Index reaches a new high, it confirms the uptrend. When the uptrend ages, prices rise more slowly or volume becomes thinner. Then a 13-day EMA of Force Index starts tracing lower tops and eventually drops below its centerline. It signals that the bull move is over.

Rule NO. 6

A new peak in the 13-day EMA of Force Index shows that a rally is likely to continue. A bearish divergence between a 13-day EMA of Force Index and prices gives a strong signal to sell short. If prices reach a new high but this indicator traces a lower peak, it warns that bulls are losing power and bears are ready to take control.

Rule NO. 7

A new low in the 13-day EMA of Force Index shows that a downtrend is likely to continue. If prices fall to a new low but this indicator traces a more shallow low, it warns that bears are losing power. This bullish divergence gives a strong buy signal.

When a downtrend begins, prices usually drop on heavy volume. When a 13-day EMA of Force Index falls to new lows, it confirms the decline. As the downtrend grows old, prices fall more slowly or volume dries up. Then the 13-day EMA of Force Index starts making more shallow bottoms and finally rallies above its centerline. It shows that the back of the bear has been broken.

One final caveat: the Force Index is not perfect, nor is any other indicator. It is best used to confirm other indicators, and when it is wrong, or when it is misinterpreted, your money management skills should preserve your capital for future opportunities.

Authors

This feature is based on material from "Trading for a Living" by Dr. Alexander Elder. Dr. Elder has published more than 50 articles, software, and book reviews, and spoke at numerous financial conferences. In 1988, he founded Financial Trading Seminars, Inc., an educational firm for traders (800.458.0939 or fax 718.639.8889). Dr. Elder offers his expert commentary on CNBC from time to time.

Jeff Borowitz, president of Trendsetter Software, Inc. publishes three market analysis programs for Macintosh from end-of-day up through real time. Before founding Trendsetter in 1987, Jeff worked in retail brokerage and computer programming.

John A. Sarkett is the developer of [Option Wizard](#) and writes on and is active in the financial markets.

Visuals

Sara Lee (SLE)

Rule NO. 1.

Buy when a 2-day EMA of Force Index turns negative during uptrends.

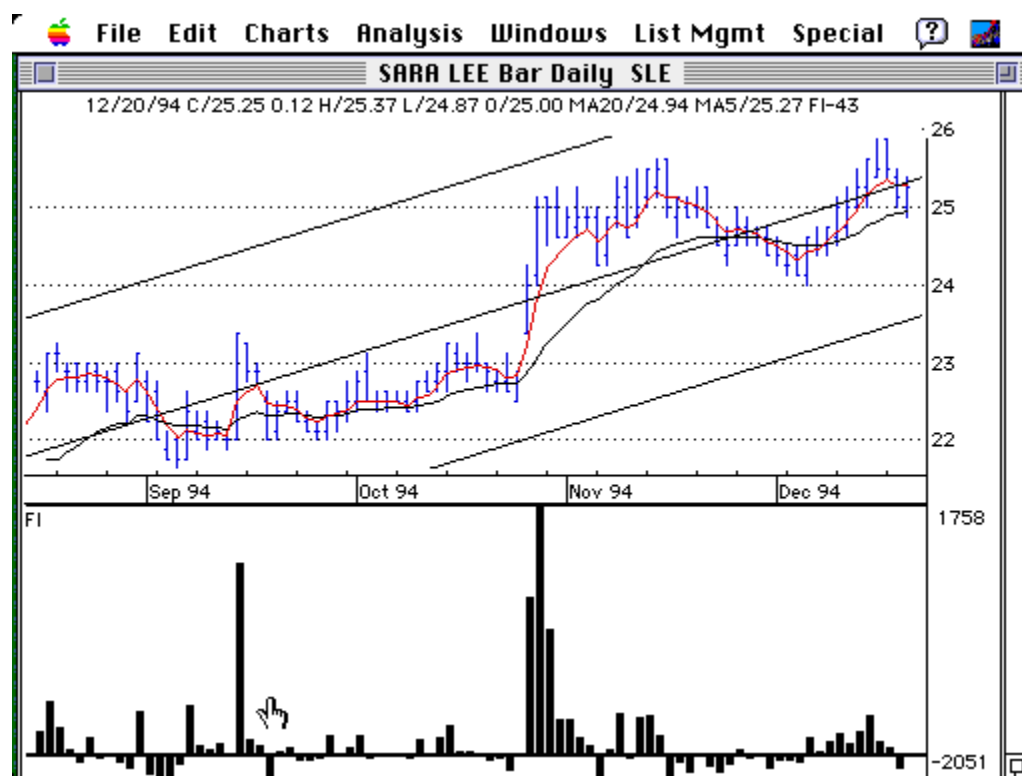


Chart courtesy Trendsetter Software Inc., Personal Analyst 2.0

With the moving averages pointed up, on Sept. 20, 1994, SLE declined enough to turn Force Index negative (-2051, to be exact). Applying Dr. Elder's rule of putting your buy stop above that day's high, you would have bought SLE at 22.75 on Sept. 30, 1994. Subsequent market action would have created a loss of just 3/8ths of a point, but then followed with an advance to 25.125 on November 15, 1994 -- a 10% gain in six weeks.

Gap (GPS)

Rule NO. 2

Sell short when a 2-day EMA of Force Index turns positive in downtrends. (See cursor.)

Rule NO. 3

Buy when prices fall to a new low while Force Index makes a more shallow bottom. (See Gap September low and high lows for FI).

Rule NO. 4

Sell when prices rally to a new high while Force Index traces a lower second top. (See November highs at 38 and decline in FI.)

Rule NO. 7

A new low in the 13-day EMA of Force Index shows that a downtrend is likely to continue. If prices fall to a new low but this indicator traces a more shallow low, it warns that bears are losing power. This bullish divergence gives a strong buy signal. For example, early in September, the Gap plunged to 38, made new lows in the Force Index, which forecast still lower lows ahead, down to the 31 level.

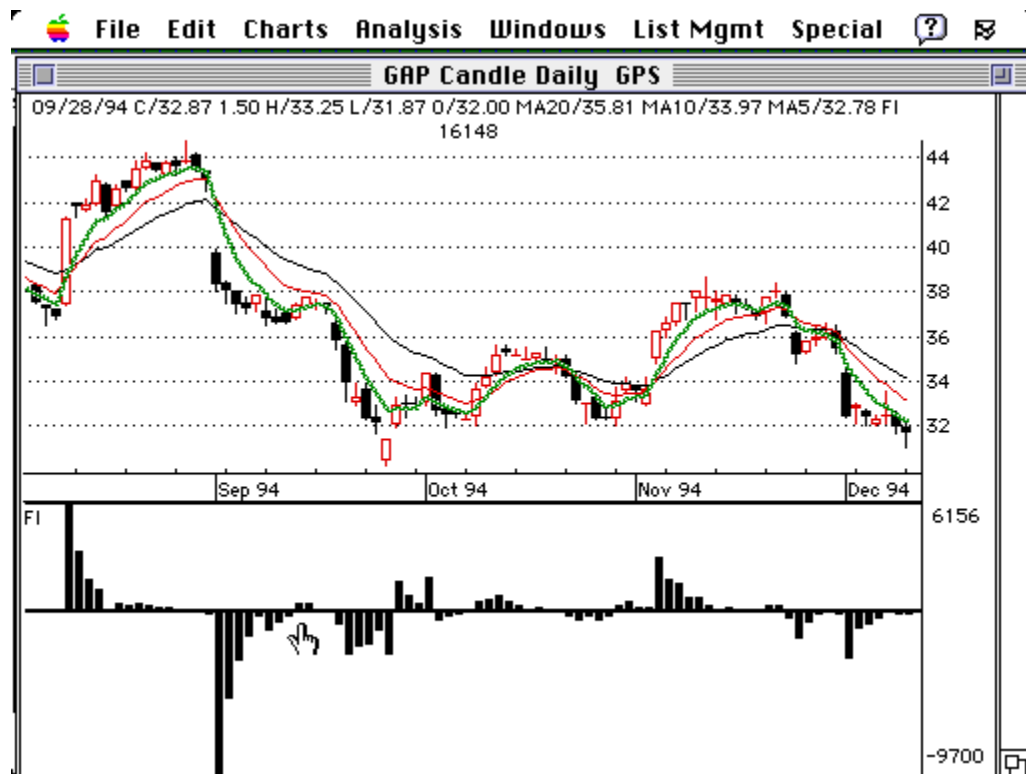


Chart courtesy Trendsetter Software Inc., Personal Analyst 2.0

With the Gap, Inc. headed south, on September 14, 1994, Force Index turned positive (3124). A short at 37.50 would ensue, and there was to be no drawdown on the position whatsoever, all the way down to a low of 30.125 on September 27, 1994, just 13 days later. A similar signal crops up at this point. A conservative trader might have passed on it, reasoning that a one-month decline of 44 to 30 represented most of the shorting opportunity, but let's say our hypothetical trader took the trade anyway, at let's say, 32.25. With a stop-loss at 34 in the cross-over area, the net for the two trades would be approximately seven points plus, two points minus for a gain of 5 points or some 15% in approximately one month.

As for rule 3, buy on new lows but shallower Force Index, the end-of-September prices in the 31s, offers a run to 38 in six weeks.

Force Index rules also counsel to get out at this level, rule 4, because the new highs of 38 are not confirmed by new highs in the Force Index, in fact, Force Index steadily declines, presaging the decline back to the 31s in December.

Merck (MRK) and the 13-day e.m.a. of Force Index

Rule NO. 5

When a 13-day EMA of Force Index is above the centerline, bulls are in control of the market, and when it is below the centerline, bears are in control.

Rule NO. 6

A new peak in the 13-day EMA of Force Index shows that a rally is likely to continue (see cursor). A bearish divergence between a 13-day EMA of Force Index and prices gives a strong signal to sell short. If prices reach a new high but this indicator traces a lower peak, it warns that bulls are losing power and bears are ready to take control.



Chart courtesy Trendsetter Software Inc., Personal Analyst 2.0

After many months of concern over Pres. Clinton's health care plan and the negative effect it would have on drug companies, the bears began losing power to push prices down further in April, 1994. When neither Force Index nor prices could make new lows in July, the stage was set for a run from the 29s to 38 in the next six months.

Force Index: a visual difference

Sidebar by Jeff Borowitz, president, Trendsetter Software, Inc.

At this writing, Personal Analyst 2.0 and Personal Hotline 6.8 are the only software packages in any platform that offers the Force Index as a pull-down menu item. With some 25 technical indicators already available in each of these programs, why offer yet another, you might ask?

The reason is visual. While oscillators like stochastics, relative strength index and commodity channel index are extremely valuable, and few of us would want to trade without them, there is a certain sameness, a certain gradualness about their undulating waves. As these are price-only based indicators, there is no difference in them if 50,000 or 5,000,000 shares or contracts are traded.

With Force Index, there is a difference, and often a powerful difference.

Take a look at how the 13-day e.m.a of Force Index confirmed last year's upmove in Apple Computer.

The Force Index is not a long-term indicator, as evidenced as the subsequent slippage in Apple stock, it is a trading tool, but it did confirm the change in direction for the following 13 points, and 90 days from the first July signal.

Like the four players in the ancient Oriental play Roshomon, who tell very different versions of the same incident, different traders can look at a single chart and come to very different conclusions about the direction of the market. Therefore, what typically follows is the ebb and flow of the market, up and down, bull push and bear pull.

What the Force Index does is show clearly, dramatically and compellingly, when the bulls or the bears have broken through decisively, and a market consensus is reached that will provide the path of least resistance for trading days immediately following. It is dramatic, visual and compelling, and that's why I decided to include it in the most recent Personal Analyst and Personal Hotline!

Sidebar Visual

Chart courtesy Trendsetter Software Inc., Personal Analyst 2.0



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"Top 10 Options Mistakes" August 1998 Futures
Option Wizard Trading Method, March 1998
Option Wizard Review March 1998 TASC
"Time and Options Probabilities" December 1997
"The Force Index" April 1995 TASC
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